

Dimensional Analysis and Metric System Practice *Pre-AP*

On a **separate sheet of paper** complete the three (3) sections below **using dimensional analysis**. You must show all work including units and circle your answer for full credit.

Practice 1-10 first you will need show BOTH possible conversion factor and then use dimensional analysis to complete each question showing ALL units.

1) 5km to meter \times _____ =

2) 450nm to meters \times _____ =

3) 0.15mil/hr to mil/s _____ \times _____ =

4) 7mg to g _____ 5) 76mm to m _____ 6) 47cm to dm _____

7) 0.8km to dm _____ 8) 800mg to kg _____ 9) 350cm to meter _____

10) Convert 45km/hr into meter/minutes; First conversion factor convert km into m, km \rightarrow m. second conversion factor, hours to min hr \rightarrow min. and. Following this set up:

$$\frac{km}{hr} \times \text{_____} \times \text{_____} = \text{_____}$$

Practice 11-20: If you feel comfortable not writing down both conversion factors you may skip that step; however, you will still need to use dimensional analysis to complete each question showing ALL units.

11) 70g to kg _____ 12) 150cg to kg _____ 13) 700km to m _____

14) 1.5×10^5 m to km _____ 15) 300km/hr to m/s _____ 16) 8.01×10^{-5} kg to g _____

17) 5.5×10^8 mg to kg _____ 18) 7.0×10^{35} mm to m _____ 19) 8.07dg to kg _____

20) If a mega gram (Mg) is equivalent to 1 000 000 grams how many μg are in 3Mg? Look at your metric system hand out for the conversions factors

Practice 21-30: Complete just as 11-20, but this time there is a mixture of length, mass, and volume units.

21) 34.2mg to dg_____ 22) 50ml to L _____ 23) 2.5L to dm^3 _____

24) 9.6×10^{-6} mm to m_____ 25) 5.0×10^{-8} L to cl_____ 26) 7.5×10^{15} mg to kg_____

27) 5 000L to cm^3 _____ 28) 7 800 000L to ml (express in scientific notation)

29) If you weighed 47kg how many grams would that be? How many ng?

30) **This one might be a challenge.** If a skittle weighs 1 125mg and a bag full of skittles weighs 310kg what is the maximum number of pills that the bag can hold? Hint the bag weighs only 75mg